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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,545	04/26/2007	Hugues De Feraudy	2901653.14	4756

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EXAMINER	
TISCHLER, FRANCES	

ART UNIT	PAPER NUMBER
1796	

MAIL DATE	DELIVERY MODE
05/20/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/582,545	DE FERAUDY ET AL.	
	Examiner	Art Unit	
	FRANCES TISCHLER	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 17 March 2009.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-35 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-35 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

The 112 rejections not discussed below are deemed withdrawn.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1 – 35 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1- 32 of copending Application No. 10/576,256 in view of Feraudy (US 6,460,788). Although the conflicting claims are not identical, they are not patentably distinct from each other.

Both applications claim a method for selective separation by density of a mixture of waste synthetic organic materials to be reused having a density of at least 1. The

density separation is done in a separator in an aqueous suspension with powder particles used for creation of density levels. Dynamic stabilization is done with compounds such as phosphates, polymers of acrylic acids, etc. The instant application claims further dynamic stabilization through circulation in the separator, the circulating flow rate values (claims 1, 8, and 9) of which are absent in 10/576,256. Feraudy discloses a method fro selective separation by density of a mixture of polymers to be reused. The density separation is done in an aqueous suspension with powder particles to create density levels, and with stabilization agents. Feraudy discloses the use of a separator with circulation rates that vary depending on how the procedure is done. It would have been obvious to one of ordinary skill in the art to have achieved the dynamic stabilization of the suspension in 10/576,256 with Feraudy's circulation rates.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

Claims 13 – 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant claims a water-soluble acrylic copolymer.

However, in some embodiments of the claim, such as when n = 0, the polymer is no longer acrylic.

Claim Rejections - 35 USC § 103

Claims 1 – 11 and 28 – 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feraudy (US 6,460,788) in view of Allen (WO 2004/009200).

Regarding claims 1 and 2: **Feraudy** discloses (abstract, column 3, lines 6 – 34, column 4, lines 14 - 19) a method of separating a mixture of polymers, such as PE, PP, PS, ABS, PPMA, PVC, etc., derived from waste using a density separation technique. The density separation is done in a liquid medium (column 3, lines 23 – 25). The density of the polymers range from below 1 to 1.25 (column 5, lines 65 - end, column 6, lines 1 - 35). The density separation can be done in a single separator or in several separators connected in parallel or in series (column 3, lines 6 – 35, column 6, lines 31—35, column 8, lines 41 - 45). Feraudy preferably uses floatation hydraulic separators comprising water, wetting agents and inorganic compounds (column 6, lines 36 – 46).

Feraudy is silent on the size of the inorganic compounds/powder particles, circulating flow rate and precision level of the density reading.

The inorganic compound used to increase the density of the water comprises clays, bentonite or soluble compounds and salts, calcium carbonate, talc, silica, alumina (column 6, lines 36 – 46, column 8, lines 18 - 20), reading on applicant's claims 3 and 4.

The wetting agent, such as SP 30 S from Coatex, is used to keep the clay in suspension (column 6, lines 46 – 48), reading on applicant's use of a stabilizing agent of claim 11.

The hydraulic separators disclosed by Feraudy can be static separators, dynamic separators, electrostatic, or those with a pump and a cyclone to produce a circulating sorting flow (column 12, lines 3 – 11), reading on applicant's claims 1, 6 – 9, 28 and 30. Feraudy discloses that the circulation rates vary depending on how the procedure is done, such as once or batchwise, and should be optimized accordingly (column 12, lines 12 - 17). Feraudy is silent on an exact number for the flow rate or hourly turnover rate. Applicant admits ([0097]) that a person skilled in the art would know how to adjust the flow rate to keep the particles in a homogeneous environment. The case law has held that "A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. In re Antonie, 559 F.2d618, 195 USPQ 6 (CCPA 1977). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have adjusted the flow rate or hourly turnover rate as necessary through routine optimization to obtain the desired results.

Feraudy discloses doing a first phase of density separation where the density is decreased from 1.25 to 1, followed by a second phase of density separation, where the density is increased from 1.25 – 1 (column 3, lines 6 – 35), reading on applicant's claim 29. The hydraulic separator can have a pump and a cyclone to produce a circulating

sorting flow (column 12, lines 3 – 11), reading on claim 30. The various stages of separation in parallel or in series (column 3, lines 6 – 34, column 6, lines 31 – 35), read on claim 31.

Feraudy is silent on the conductivity of the aqueous phase claimed in claim 10. However, applicant admits ([0086]) that the water to be used in making the aqueous suspension can be spring water, water for human consumption, industrial water, sea water, etc. Therefore, the conductivity of Feraudy's aqueous suspension is inherently the same as applicant's claimed suspension, since the water can come from any source and Faraday is not specific as to what water to use, and both applicant and the prior art add inorganic compounds and stabilizing agents to make the same suspension for the same purpose of separating polymers according to densities.

Feraudy discloses that the density separation can be done on a smooth or stepwise function (column 3, lines 12 – 16), in one separator or in more than one separator (column 6, lines 64 – 67). The density is decreased or increased by automatic addition of a precise amount of water (column 6, lines 57 – 61), or by an automatic addition of a precise amount of clay (column 9, lines 5 – 15), which reads on applicant's claim to continuously control the aqueous suspension in claim 32. Feraudy is silent on the mechanics of how the automatic addition of precise amounts of water is performed, as claimed by applicant in claims 33 and 34 where electrical valves connected to tanks allows more or less water to be added depending on density readings. It can be assumed that since Feraudy's addition of water or clay is <u>automatic</u> and <u>precise</u>, it had to be done electronically (because it is disclosed to be an automatic process), with

automatic reading of density, and the water or clay needed to come from a reservoir (because the process is automatic, the addition of water is not done manually).

Feraudy discloses density separation of the polymers where the densities measure 1.25, 1.18, 1.15, 1.10, 1.05 and 1 (column 6, lines 49 – 56, column 7, lines 1 – 15, column 9, lines 16 - 30), corresponding to a precision level of +/-0.005. Applicant claims a precision level of +/- 0.0005. Neither applicant nor Feraudy disclose the brand of the apparatus used for density readings. The precision of the reading is dependent on the apparatus used. Since Feraudy is separating out the same polymers and by the substantially identical method as claimed by applicant, the densities of both inventions are inherently equivalent. Alternatively, it would have been obvious to one of ordinary skill in the art to have varied the experimental conditions, such as type, amount and size of powder, precision of the density reading device, flow rate, amount of stabilization agent, etc., through routine optimization to have arrived at the desired precision.

Feraudy discloses the use powder particles in water to aid in the density separation of polymers but is silent on the size of these particles as claimed in claims 1, 2 and 5.

Feraudy discloses the use of waste polymers but is silent on the type of waste such as automobiles or durable consumer goods as claimed in claim 35.

Allen discloses (page 1, lines 11 – 15 and lines 26 - end) a method of separating mixtures of used polymers using a density separation technique. The polymers are added to slurry consisting of water and magnetite, titanium dioxide, sand, ferrosilicate or

other materials, reading on applicant's metallic powders of claim 4. Sand reads on applicant's silica of claim 3. The particle size ranges from 5 to 30 microns (page 2, lines 5 – 23, page 4, lines 13 - 22), reading on applicant's particle size of no more than 30, 20 and 5 microns of claims 1, 2 and 5. The used polymers are obtained from durable goods.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have substituted Feraudy's powder particles, such as clays, bentonite, salts, silica, etc. with Allen's powder particles, such as magnetite metallic powder, sand, etc. for the same results since both are using the same particles such as sand/silica for the same purpose of making a slurry with it in combination with water and the polymers to be separated by density.

It would have been obvious to one of ordinary skill in the art to have used Allen's waste polymers that originated as durable goods to perform the density separation as disclosed by Feraudy, since Feraudy also discloses the use of waste polymers for the same purpose of sorting the various polymers by the same method of density separation in an aqueous environment with powder particles.

Claims 12 - 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feraudy (US 6,460,788) in view of Allen (WO 2004/009200) and further in view of Boutin et al (US 4,504,643).

The disclosure of Feraudy and Allen are discussed above and are incorporated herein by reference. Feraudy discloses the use of wetting agents/stabilizing agents such as Coatex's SP 30 S, but is silent on the specific agents claimed by applicant.

Boutin discloses (abstract, column 1, lines 1 – end, column 2, lines 1 – 30 and 63 – end, column 3, lines 1 - 30) the use of water soluble polymers used in aqueous environments as stabilizers/scale inhibitors to keep certain compounds, such as calcium carbonate in suspension and so these compounds don't separate out to the bottom of the vessel. The aqueous environment can be underground water, watercourse water, sea water, etc. The stabilizer polymer includes for example, alkali metal polyphosphates, homopolymers or copolymers of acrylic or methacrylic acid and corresponding alkali metal salts thereof, homopolymers or copolymers of maleic acid, polymers of ethylenic monoacids, copolymers of an alkali metal methallylsulfonate, such as sodium methallylsulfonate, with a monoethylenically unsaturated acid such as acrylic or methacrylic acid. The above stabilizers read on several species claimed by applicant in claims 12 - 24. The metal ions read on applicant's claim 26. The molecular weight of a water soluble copolymer of acrylic acid and vinyl sulfonate ranges from 1,000 to 25,000, which are within applicant's claimed range of 5,000 – 100,000 of claim 25.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have substituted Feraudy's stabilizing agent for any one of Boutin's stabilizing agents since the purpose of either agent is the same, which is to stabilize the

aqueous suspension that contains particles, such as calcium carbonate, salts, clays, etc., so that these particles don't separate out from the suspension.

Applicant claims 0.02% - 5% of stabilizing agent with respect to the powder particles in claim 27. Feraudy and Boutin are silent on this ratio. However, Boutin discloses (column 3, lines 25 – 30) doses of 0.2 to 50 mg/liter (i.e., 0.02 – 5%) of stabilizing agent per liter of water. Since Feraudy's slurry contains a large amount of powder particles so that it can be considered to be slurry, it necessarily contains a much larger amount of powder particles than stabilizing agent. The exact amounts of each can be optimized for the desired results.

Response to Arguments

Applicant's arguments filed 3/17/09 have been fully considered but they are not persuasive.

Applicant submits that the obviousness-type double patenting should be withdrawn because copending application 10/576256 and Feraudy are silent with respect to circulating flow rate values.

Although Feraudy is silent on an exact number for the flow rate, he discloses that the circulation rates vary depending on how the procedure is done, such as once or batchwise, and should be optimized accordingly (column 12, lines 12 - 17). Applicant also admits ([0097]) that a person skilled in the art would know how to adjust the flow rate to keep the particles in a homogeneous environment. Thus, it would have been

obvious to have adjusted the flow rate, or hourly turnover rate, as necessary through routine optimization to obtain the desired results. The double patenting rejection, therefore, stands.

Applicant submits that the polymer is always acrylic because n and q can only separately be zero.

Only claim 9 has the language of $n = 0$ when $q>0$ and $q = 0$ when $n>0$. Claim 7, now claim 32, claims that n and q are between 0 and 95, without the limitation of claim 9. Additionally, claims 8 and 10 – 20 depend on claim 32. Without the proper limitation added to claim 32, said claim is indefinite when $n = 0$. Examiner would also like to point out that when $n = 0$ the molecule is not acrylic, unless one of R9, R10, R11 or R12 is a carboxylic group. However, carboxylic acid is only one of many choices claimed for said substituents.

Applicant submits that Feraudy's separation can only achieve a differential of 0.03 with one or several parallel separators and purification lines in series.

Feraudy discloses one or several separators, which is also claimed by Applicant, and uses the same materials as claimed by Applicant (the waste material, powder such as clays, salts or sand, and wetting agents, specifically the acrylic polymer as disclosed by Boutin). Neither Feraudy nor Applicant discloses the brand of the density measurement reading device used, of which the precision of the reading depends on. Given that the method of separation and the materials used are the same, one can achieve the same differential by using the same brand of separators and of reading equipment. Additionally, both Feraudy and Applicant disclose the use of clays, salts and

sand. One can choose said powder through routine experimentation to arrive at the desired result in density differential. Moreover, Allen discloses that the size of the particles should be 5 – 30 microns, as claimed in the instant application. One can choose the type of particle and its size through routine experimentation to arrive at the desired density differential.

Applicant submits that Allen separates used polymers while Applicant uses materials derived from waste.

Examiner respectfully disagrees. “Used polymers” or “polymers from waste” have the same meaning.

Applicant submits that Allen's magnetite particle size are from 5 – 30 microns, as claimed by the instant application, but the size of other particles such as silicone dioxide is not given; that the differential threshold is not better than those disclosed by Feraudy; that hydrocyclone or cylindrical vortex is used which is turbulent as opposed to the hydraulic separator claimed by Applicant in the instant application.

Allen is used herein to teach that metallic powders, magnetite, ferrosilicate, titanium dioxide, sand, can be used, as claimed by Applicant, and that the size of said powder particles range from 5 – 30 microns. Applicant also claims “not more than 30 microns” and “limited to 5 microns”. Feraudy discloses the use of clays, bentonites, soluble compounds, salts, calcium carbonate, talc, silica, alumina etc., as claimed by Applicant. Since Allen and Feraudy disclose the use of clays, salts and sand for the same purpose of density separation, it is obvious to substitute Feraudy’s powders with Allen’s powders that disclose the size of 5 - 30 microns for said powders . Feraudy

discloses that the separator can be hydraulic, cyclone, electrostatic, etc. (column 12, lines 3 – 11) but chose hydraulic separator (column 6, line 36), as claimed by Applicant. Allen discloses only cyclone, but it would have been obvious to combine the references since both disclose cyclone for the same purpose of density separation. Additionally, Allen is used herein to teach the size of the powder particles used in density separation; Feraudy discloses the hydraulic separators claimed by Applicant.

Applicant submits that Boutin does not overcome the deficiencies of Feraudy or Allen.

Feraudy discloses the use of stabilization agents to keep the powder in suspension, as claimed by Applicant. The agent used, however, is SP 30 S from the company Coatex. Boutin is used herein to teach that other stabilization agents, such as the sulfonate of acrylic polymers claimed by Applicant, are used for the same purpose of keeping powders in suspension.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRANCES TISCHLER whose telephone number is (571)270-5458. The examiner can normally be reached on Monday-Friday 7:30AM - 5:00 PM; off every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jim Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Irina S. Zemel/
Primary Examiner, Art Unit 1796

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/FT/